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## **Determinants of Livelihood Choices and Artisanal Entrepreneurship in Nigeria**

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**Determinants of Livelihood Choices and Artisanal Entrepreneurship in Nigeria**

**Abstract**

**Purpose** – This study provides fresh insights into rural artisanal activities in a developing world context. It highlights key determinants of the decision to engage in an artisanal business and the challenges that impact upon the growth of these activities.

**Design/methodology/approach** – The study adopts a mix-method research approach to explore a rural setting where most respondents (81 percent) combine farm and non-farm livelihood activities. Quantitatively, a multi-nominal regression is used to examine the determinants of diversified artisanal livelihoods. It modelled the differences between farming livelihoods that have not diversified, compared to those also involved in the artisanal activity or wage employment and the intensity of participation.

**Findings** –The findings show that nearly half of artisanal businesses (45.4 percent) comprise only the owners and no employee, while 54.6 percent employ 1-3 workers. Also, some artisanal ventures were more gender-specific than the gender-neutral activities. Other observations were in age (most artisans were under the age of 46 years) and vocational training (most were self-trained followed by a third receiving training only in specific areas such as technical works, building and construction and general trading apprenticeships).

**Research limitations** – The study is based on a relatively small sample size of 306 business owners, which makes it difficult to generalise despite the persuasiveness of the observations made.

**Practical implications** – First, the use of econometric methods enabled development of valid data sets (and various descriptive statistical and logit regression) to analyse determinants of the decision to engage in artisanal work, and the intensity of participation. Second, the ambiguity in categorising artisanal activities is unravelled. The study characterises the local artisanal sector and examines the intensity of participation. Without these, targeted support would remain elusive for practical and policy interventions.

**Originality/value** – Artisanal activities constitute a high proportion of small businesses in the study area – with more than half (54.2%) of respondents being classified as artisans, yet it is an overlooked area of entrepreneurship. Highlighted here are both types of activities and challenges regarding better conceptualising our understanding of artisans and regarding this mostly unarticulated base of practice.

**Keywords** – Artisan Entrepreneurship, Family firms, Small business, Decision making

**Article Type:** Research paper

## Introduction

Artisanal and other non-farm activities constitute a major component of livelihood choices in developing world contexts. Artisanal enterprises have traditionally been mainly associated with place and locality (Brown, 2015); and sometimes identified in terms of cultural forms of business ventures (Lounsbury and Glynn, 2001). Due to the diversity of the artisanal sector, there is no consensual definition of artisans. In one strand of literature, artisans are distinguished by the type of trade they practice, while in another, they are defined based on having distinct goals or value sets (Tregear, 2005). However, irrespective of the definition adopted, artisans are the most prevalent form of small businesses in developing economies, especially in the rural communities. Rural enterprises are becoming more prominent and integrated components of a community's economic activities (Apostolopoulos *et al.*, 2018; Koyana and Mason, 2017; Lyee and Cowling, 2015; Muhammad *et al.*, 2017). This type of economic activity is widely acknowledged as an engine for rural economic development (Igwe *et al.*, 2018a; Newbery *et al.*, 2016; Newbery *et al.*, 2013; Seedhouse *et al.*, 2016).

There is another interesting commentary on artisanal businesses, which states that “most people still do not understand the full economic value of the sector and they do not think of artisan businesses as real industries – or as drivers of economic development and job creation” (Foote, 2015: 1). The literature classifies artisans as trade practitioners or as lifestyle-seekers (see, for example, Tregear, 2005: 2). This study argues that, in the developing world context, it is the former (i.e. artisans as trade practitioners) that makes the most sense. In the developing world context for instance, rural populations take various forms of activities, including, farm-based income via the production of crops and livestock; non-farm income via micro-industry and trading enterprises (Muhammad *et al.*, 2017); and waged labour, either in rural industries or via labour migration by family members to work in urban industry (UN, 2008; World Bank 2008). Artisans have, however, started being recognised in both the academic and policy circles alike. The word ‘Artisan’ is often viewed as culturally embedded (vernacular) material production (Sennett, 2008) involving close engagement of the maker with the physical world, working with its sensory, material, spatial and environmental qualities to create objects highly related to ‘place’ (Brown, 2015).

Throughout history, artisans have produced utilitarian goods in response to a social demand within their community. Artisan enterprise culture has had to adapt to modern products under the influence of outside agents (Markwick, 2001). Nowadays, handicrafts that were majorly traded within the community as utilitarian items or everyday objects in the past have now gradually become commercialised outside these local markets (Swanson and Timothy, 2012). The rise in mass tourism is another factor that contributes to the global outreach of traditional handicrafts, thus creating a market for the external audience (Chutia and Sarma, 2016). To understand the situation of rural artisans in the developing world context, it is necessary to examine the full diversity of the experiences of the social actors in the context of the changing rural economy (Lyee and Cowling, 2015). These usually include gaining better insight into access and control over resources, and determinants of their decision-making based on the ‘Sustainable Livelihood Approach theory’ (SLA) (Carney 1998; DFID, 2000; Hockerts *et al.*, 2018; Krantz, 2001; Morse and McNamara, 2013). SLA focuses on the design of interventions relevant in situations where people may have multiple contributions towards their livelihood rather than just a single wage or salary (Morse and McNamara, 2013). According to Chambers and Conway (1992: 7):

*“A livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living; a livelihood is sustainable when it can cope with and recover from stress and shocks, maintain or enhance its capabilities and*

*assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long-term”.*

In many rural areas, as subsistence agriculture is giving way to commercialised agriculture, artisanal activities play an important role and links rural communities (producers and consumers) to the urban economy (see, for example, Barrett *et al.*, 2001; Grimes and Milgram, 2000; Stephen and Lenihan, 2010). The changes in rural economies of many developing countries have been accompanied by related changes in the organisation of production and marketing. These include the intensification of large-scale handmade goods, the use of modern machines, outsourcing of manufacturing, thereby creating vibrant artisanal industries. As a result, successful industrial clusters are developing in many regions. For example, these clusters can be seen in many locations in Eastern Nigeria (see, for example, Brautigam, 1997; Madichie *et al.*, 2008; Madichie and Nkamnebe, 2010; Meagher, 2010). These cities and urban locations have become important tourist destinations because of artisan entrepreneurship.

The focus of this study is to provide insight into rural artisanal activities, determinants of the decision to engage in an artisanal business and the challenges that impact upon its growth in the developing world context. The study characterises the local handicraft sector to identify essential elements for micro-enterprises. Artisanal is an industry that has not been widely researched in Africa context. Like most previous family firms' studies, we consider artisans as micro-businesses, mostly family owned, informal and operated by family labour or few employees. The attributes of informality and family-orientation include having fewer than five employees, being unregistered, usually unlicensed, and typically do not pay taxes (Igwe *et al.*, 2018c; Igwe *et al.*, 2018d; Khavul *et al.*, 2009). The changes associated with the liberalisation of markets, tourism, the increase labour mobility and diversification of rural livelihoods have brought both gains and challenges to artisans. However, to understand the benefits and challenges identified above, this paper adopts a different approach from previous artisanal entrepreneurship research to make contributions to knowledge.

The first main contribution related econometric methods employed that enabled development or assembling of valid data set and then uses various descriptive statistical and logit regression to analyse determinants of the decision to engage in artisanal employment and the intensity of participation. As far as we know, this issue has not been directly examined in artisan entrepreneurship research by applying logit model as previous studies focused on investigating the goals and values of craft practitioners (Bouette and Magee, 2015); examining the goals of contemporary artisans (Tregear, 2005); describing the current situation of the handicraft market (Forero-Montaña *et al.*, 2017); and as a means to promote long-term development of the rural economy (Dana, 1999; Lyee and Cowling, 2015). To determine the factors influencing the decision to engage in artisanal activities we employed socio-economic (independent) variables such as age, sex, education (see, for example, Kabongo and Okpara, 2010), technical education, household size, farm size, access to credit, access infrastructure, etc. A second contribution relates to the ambiguity in categorising artisanal activities, as there is no consensual definition of artisans (Tregear, 2005). In this study, we characterise the local artisanal sector and examine the intensity of participation. In so doing, we contribute to a better understanding of the concept of artisan entrepreneurship.

Following this opening section, the next part of this study explores the literature on artisan entrepreneurship, SLA theory and environmental factors that impact on rural micro/small enterprises. This is followed by the methods underlying the research approach (see, for example, McDonald *et al.*, 2015). Based on a mixed method, the study goes on to

present a profile of rural artisans, examine the determinants and intensity of participation in artisanal activities. The study concludes with a discussion and implications for future research.

### Literature Review

Defining 'artisanal entrepreneurship' has always been problematic (see, for example, Blundel, 2002; Steel, 1979; Tregear, 2005). Yet, the fact that no definitional consensus has been achieved is itself revealing. As Tregear (2005: 1) opined, "in studies of small firms and their contribution to regional development, the artisan or craftsperson is an ambiguous entity [...]. In one strand of literature, artisans are characterized as individuals practicing certain types of trade in which manual techniques take precedence, for example, textiles and metalware..." In his investigation of the urban artisanal sector, Steel (1979) pointed out many decades ago that "artisanal manufacturing and service enterprises in developing world contexts such as Yaoundé [Cameroon] and Accra [Ghana] revealed that there are inherent operational problems of defining, measuring, and assisting 'artisanal' or 'small scale' activities" for which these ventures are renowned. In that study also, some of the artisanal sectors mentioned included clothing, furniture and wood, food preparation, vehicle repair, metalwork, barber shops and hairdressers, shoes, electrical appliances repairers, milling (Steel, 1979: 275). Similarly, Blundel (2002: 3) outlines artisanal products as including food, ceramics, furniture and textiles. He goes on to highlight that 'comparatively little attention has been paid to craft-based enterprises' when considered alongside the 'high-tech' firms even though both kinds of businesses can be explored using very "similar analytical approaches." In another study, Forero-Montaña *et al.*, (2017: 9) examined local artisans and sawyers in Puerto Rico as home-based family microenterprises engaged in the harvesting, processing, and trading a wide variety of local forest products. Also, Brew *et al.*, (2017: 3) explored the changing context of an academic work introducing the idea of academic artisans.

Two key points are evident from the above. First, there is some ambiguity in the conceptualisation of the concept. Second artisanal ventures usually favour the use of manual techniques especially in activities such as textiles, metalwork and weavers (Cohen, 1998). To add to the latter list, there are other activities such as repair work (auto, watch etc.), woodwork (carpentry), and hairdressing (including barbing salons). Despite the difficulty in the conceptualisation, artisanal in the form of small businesses play essential roles in developing countries. It has been argued that artisanal and subsistence activities in rural developing economies are key to economic development and employment, leading to a more equitable distribution of income (IFAD, 2012).

In this study, we draw on insights from SLA literature on occupation-based activities such as agriculture, wage employment, and non-farm businesses (including family businesses and artisanal operations in the non-farm sector). We assume that households choose one or a combination of these options for self-employment, income sources and as a livelihood strategy. In sub-Saharan African countries, livelihood choices take in the form of diversified subsistence agriculture (Lanjouw and Lanjouw, 2001) and informal micro/small non-farm employment. Three rural livelihood factors are mentioned as determining the nature and extent of diversification – seasonality, risk and vulnerability (Igwe *et al.*, 2018c). To plan for these circumstances, the household becomes less dependent on agriculture (IFAD, 2009) but diversify into non-farm and artisanal activities. These non-farm activities provide survival strategies for risk reduction (Estrada-Robles, 2016; Fabusoro *et al.*, 2010; Revilla *et al.*, 2016), risk-taking (Carsrud and Cucculelli, 2014; Wang and Poutziouris, 2010) and innovation (Duran *et al.*, 2016; Matzler *et al.*, 2015). Nevertheless, there are many challenges facing rural businesses, such as access to finance (Michiels and Molly, 2017; Ramalho *et al.*, 2018), infrastructure (Krishna and Shariff, 2011; World Bank, 2011), education (Aikaeli,



2010), political environment (Igwe, 2016; Ochulor, 2011) and culture (Aidis *et al.*, 2012). Therefore, an important research focus is to examine the challenges to rural artisanal activities of which many in the developing world depend on for employment and livelihood.

In her findings, Tregear, (2005: 1) observed, "... *strong evidence of both lifestyle goals and commercial ambitions and skills among artisans.*" The study goes on to suggest that "when operating in buoyant niche markets, artisan producers offer the potential for the valorisation of local resources, skilled employment, and development of localised supply chains. However, under adverse market conditions, it is hypothesised that artisans may follow one of two pathways, both of which lead to a loss of socio-economic benefits..." This study focuses on the latter, i.e. entrepreneurship under adverse market conditions epitomised by the Nigerian economy to examine the growth of artisanal enterprises. In the rural areas of developing countries, artisans integrate craft production and trade with subsistence activities, such as farming, herding, hunting and fishing (Grimes and Milgram, 2000). Recently, there has been an increased interest in local and handmade goods that are linked to culture and tourism (Ratten and Ferreira, 2017).

Tregear (2005: 1) examined the goals of contemporary artisans from 'two strands of literature' offering different conceptualisations of artisans, "the first inferring proclivity towards co-operation and community involvement, the second assuming prioritisation of lifestyle goals over growth". According to Tregear (2005: 1), "each conceptualisation presents alternative implications for regional development. To assess the contrasting theories of the character and socio-economic role of artisans, a qualitative study was undertaken, involving in-depth interviews with 20 artisan food producers in the north of England, exploring their goals and activities." Tregear's study provides further evidence that the list of artisanal activities is a growing one, which includes food production cutting across geographical boundaries. England, for example, is not an agrarian society, but artisanal activities (e.g. cheese making, meat processing, etc.) are evident in that sector of the economy.

One topic of research in entrepreneurship that has drawn a substantial amount of attention in recent years is identifying different motivations for starting a business (Fairlie and Fossen, 2017; Madichie and Hinson, 2015). Two major distinctions that have repeatedly been discussed and contrasted with each other in the literature are "opportunity" entrepreneurs (OEs) and 'necessity' entrepreneurs (NEs) (see, for example, Calderon *et al.*, 2017; Taylor, 1996; van der Zwan *et al.*, 2016). The earlier refers to those who start a business because they spot an opportunity in the market which they want to pursue and the latter refers to those who start a business as they do not have another means of generating income. It could be argued that most of the artisanal activities in developing countries have been because of "necessity" (push-factor) rather than "opportunity" (pull-factor) (see for example, Block and Wagner, 2010; Davidsson, 2015; GEM, 2016-2017; Herrington and Kelly, 2012; Kautonen and Palmroos, 2010). It is believed that 'OEs' tend to create high-growth businesses than 'NEs'. However, the current economic climate in many low/ middle-income countries is creating a growing number of NEs (Amin, 2009). While 'NEs' in developing countries range from street sellers to educated hopefuls with little access to formal employment, the one thing that unites them is the need to survive (Brewer and Gibson, 2014).

'Social identity theory' scholars point out that social categories precede individuals – i.e. individuals are born into an already structured society (see, for example, Stets and Burke, 2000). Given that artisanal and other non-farm activities form a significant component of livelihood in developing countries, there is a need for research to understand the nature and how these activities can be improved to promote economic development. Hence, the recent academic and policy focus on artisan entrepreneurship is an exciting development.

Furthermore, given that most micro/small entrepreneurs in Africa, fall into the necessity entrepreneurship makes this research a valuable contribution. This leads us to the following research questions: What are the characteristics of rural artisans? Are there gender difference regarding ownership, types of activities and obstacles to entrepreneurial intentions? What are the socio-cultural, economic and political challenges that face rural entrepreneurs? What are the relationships between some socio-economic variables (such as gender, education, age, technical education, access to credit, farm size, infrastructure, etc.) to artisan career choices?

### Design, Methodology and Approach

This study focused on obtaining in-depth understanding of the concept of artisanal entrepreneurship and their practices (see, for example, Higgins *et al.*, 2015; Igwe *et al.*, 2018b; Kraus and Njemand, 2016). It adopts a mixed method with the initial data collected from a questionnaire survey and later validated through Focus group. Methodological validation is based on the rationale that a single method is insufficient to provide adequate and accurate research results (Holtzhausen, 2001). The questionnaires were developed in a two-step revision stage. First, a structured questionnaire was designed to collect quantitative and qualitative data. Second, validity test was carried out in which the questionnaire was applied to ten business owners to obtain feedback about the clarity of the questions, the use of appropriate terminology, and the possible omission of important rural and income activities (see, for example, Nwankwo *et al.*, 2010). The questionnaire was administered to owners of non-farm businesses (who were also engaged in farming and or wage employment). Farming includes crop and livestock activities (i.e. on-farm labour), non-farm captured all income activities related to 'off-farm' self-employment, while wage employment implied that respondents were engaged in salaried work in addition to farming.

A random sampling technique was adopted in investigating the local business community of interest in this study. The survey started with locating and identifying local cooperatives, trade associations in the selected 20 local communities in five States that constitute Eastern Nigeria – i.e. Abia, Anambra, Ebonyi, Enugu and Imo (four communities from each state). The executive committee members of the cooperatives and trade associations were contacted with a request to administer the questionnaire to their members. Every State has a local government area, the community has villages, and each was considered as a cluster. Within each cluster, random sampling technique was further employed to select cooperatives and trade unions and business owners. Fifty association was handed 20 questionnaires to randomly distribute to their members, making a total of 1000 Questionnaires. The reason for adopting this approach is to eliminate the barriers associated with collecting data in Nigeria due to lack of postal facilities, email and business contact addresses. This method also ensures a high rate of response rate due to a high degree of trust and accessibility of respondents. Of the 1000 questionnaires originally sent out, 306 completed questionnaires were returned (giving a response rate of 30.6%).

The sample size was deemed appropriate for the statistical analysis techniques (see, for example, Cooper and Schindler 2006; Robson 2002), and the follow-on focus group served as a sounding board (Nwankwo *et al.*, 2005) to validate the findings. Indeed, with the mixed-methods adopted in this study, the methodology improves upon similar studies. For example, in their investigation of the "cultural determinants of entrepreneurial emergence" of the Igbo ethnic group, Madichie *et al.*, (2008) relied on a survey of 30 owner-managers and 236 top-management staff of select Nnewi indigenously owned firms. Furthermore, while García and Welter (2011) employed a sample of 19 business owners in Spain to study gender identities and practices, Tregear (2005) applied in-depth interviews with 20 artisan food producers in the north of England to explore their goals and activities. The survey was followed up with a focus group to validate the received responses and clarify some pertinent



trends captured from the survey (see, for example, Morgan, 1993). The study uses a multi-nominal regression to explore the determinants of diversified artisanal livelihoods. Differences between farming livelihoods that have not diversified were modelled against those that are also involved in an artisanal activity or wage employment. Following this, the study assessed variables relating to the intensity of participation.

**Research Context and Framework**

The theoretical framework for determining the effects of the factors influencing participation in non-farm and artisanal activities has its roots in the logic behind the SLA theory (Carney 1998; DFID, 2000; Krantz, 2001; Morse and McNamara, 2013; Hockerts *et al.*, 2018), which started out amongst development practitioners and researchers since the late 1990s and was a central concept of the Department for International Development’s (DFID) strategy. The eastern states of Nigeria are famous for their artisanal activities (Bräutigam, 1997; Meagher, 2010). Eastern Nigeria is home to the Igbos, a region and population that hosts three of the most extensive concentration of business activities in Nigeria – notably Aba, Nnewi, and Onitsha. The commercial hub of Aba has by ‘dint of hard work’ by thousands of artisans, carved a niche in finished leather products such as shoes, bags, and belts etc. (Ugwu, 2016). While Aba is also host to the famous *Ariaria International Market*, which has become the largest market in West Africa (Munro, 1995), Onitsha Main Market is a hub of commerce in the region including home to the Iweka Road home of movie-making (Madichie and Nkamnebe, 2010). These commercial hubs influence the rural communities in terms of rural-urban labour migration and supplies of local handicrafts and agricultural food supplies. Furthermore, Aba, Enugu, Onitsha and Nnewi have become famous tourist destinations in eastern Nigeria because of artisan entrepreneurship.

*Descriptive Statistics*

The dataset presents descriptive statistics revealing the types of business activities, socio-demographic characteristics of the sampled respondents. All the business owners captured in this survey were engaged in farming (in addition to participating in any of either non-farm, off-farm labour or artisanal activities). This is not unusual, given that about 80% of Nigerians live in rural areas and agriculture is the primary occupation (Nwankpa, 2017). All the activities were family-oriented, given that all the owners described their business as a family business and reported to having family members working either part-time, full-time or voluntary. The composition of rural livelihood activities (shown in Table 1) revealed that the share of the formal activity is 18% (farming, 5.3%, non-farm & artisanal, 12.7%) and informal activity is 82% (farming, 13.7%, non-farm and artisanal 68.3%), indicating that informal activities provide the bulk of farming, non-farm and artisanal employment in the study area. African Development Bank estimate that between 80-90% of total employment is informal in Africa and the informal sector contributes 80% of the labour force (AfDB, 2013).

The ownership structure showed that men dominate in farming activities with 15.1% (women 3.8%), while women dominate in non-farm and artisanal businesses with 51% (men, 30%). These results followed similar results recorded by the National Bureau of Statistics Sample Survey (NBS, 2012) which revealed male dominance in agricultural activity at peasant level in Nigeria by 85% (women, 15%). Another explanation for the farming statistics is that culture and tradition favour men over ownership of assets such as land in rural communities, given that men assume the rights and positions of head of households and participate in paid employment more than women (Igwe *et al.*, 2018a). Hence, more women than men take up non-farm and artisanal activities in addition to on-farm labour as revealed by the survey statistics. The intensity of participation in artisanal activities in the study area is high. Given the categorisation of artisans from the review of the literature, more than half

(54.2%) of the respondents were classified as artisans (marked as \* in Table 1). The results showed that rural artisans engaged in diversified portfolios as part of livelihood strategy. For example, 13% of respondents are involved in the manufacturing of handicrafts and 14.6% engaged in trading. Arguably, most of these people are "necessity entrepreneurs". Conventionally, less economically developed or those nations with weak institutional frameworks have a higher proportion of necessity entrepreneur (Amin, 2009).

#### [INSERT TABLE 1 HERE]

Data revealed that about 45.4% of non-farm and artisanal businesses comprise only the owner and no paid employee. The average number of employees in the family businesses were 1.6 persons. About 42.3% employed between 1-3 employees, with two-thirds of this proportion of businesses (29.6%) having employees related to the business owners as employees or apprentices. Only 12.3% had more than four employees as full-time or part-time. The artisanal activities engaged by men and women revealed in the survey shows many activities (e.g. mechanics, electricians, plumbers, shoemakers, handbag makers, weavers, traders, restaurant and/ or beer parlour (pubs), craft making, fish pond, food processing, newspaper vendors, tailoring, traditional medicine, photography, phone call centre, butchers, miners, etc.). As reported in one Nigerian Daily (Vanguard, 24 January 2018), at the beginning of telecoms revolution in Nigeria, most jobless Nigerians saw opportunities in selling recharge cards and running roadside call centres (also known as phone call centres).

When the data were disaggregated by gender, it revealed that some artisanal ventures were more gender-specific (e.g. carpentry, general repairs such as maintenance services, electrical maintenance, plumbing, auto mechanics, etc.) than the gender-neutral activities (e.g. traders, restaurants and bars, tailoring, photography and poultry farming). It was also observed that there were only a few activities that seemed common to both men and women, but with men activities being more extensive. The survey also captured socio-demographic characteristics which include; age, gender, marital status, educational qualification and family size. The results show that age of majority of the respondents (82.7%) are between the 20 – 45 years age group, with a mean age of 52.6 years (Table 2). This finding is in line with surveys by Small and Medium Enterprise Development Agency of Nigeria, (SMEDAN, 2013) that revealed age bracket of ownership structure showed that age bracket of 24-50 dominates in micro/small artisanal enterprises. Data on educational qualifications revealed that about 19.6% of the respondents attained between 0-5 years schooling (that is, did not have formal education or did not complete primary school), 49% spent 6-10 years (that is, completed primary education but an uncompleted secondary education). The findings further revealed that 19% spent 11-14 years, while 12.4% spent 15-18 years. The mean of years spent in school was 6.9 years (Table 2). The low level of higher education among the respondent corresponds with GEM studies which showed that Nigeria is noted for its low levels of tertiary education (GEM, 2014). One significant finding was that of 12.3% businesses that employed more than four employees, 10% of that came from the owners that have higher qualifications such as diploma, degree and post-graduate.

#### [INSERT TABLE 2 HERE]

The findings revealed that majority (92.2%) of the respondents were married as against others which comprised of those who are single, widowed and separated who accounted for 7.8%. The findings of the family size showed that most respondents (74.5%) had between 6-10 members, 16% who had between 11-15 members, 6.5% had between 1-5 members and 2.9% who responded revealed that they had between 16-20 members in their household (Table 2).

The results revealed the average family size of 10.3, an indication of significant family size. Several authors (see, for example, Fabusoro *et al.*, 2010) have previously noted that a large household in developing countries are likely to have more diversified income sources if it has some or all its members working and contributing income to their households. The survey identified the training received by the respondents to include three major areas as *Technical* work (30%), *Construction* work (8.5%), and *Trading apprenticeship* (6.5%). Others include tailoring, catering, hairdressing and weaving, and manufacturing work, food processing and electrical/mechanical work (Table 3). The results revealed that majority of the respondent was self-training about 38.2%, through learning by doing. Previous studies (e.g. World Bank, 2008), have shown that people who have had some form of vocational training are more likely to work in non-farm activities.

[INSERT TABLE 3 HERE]

*Barriers and Environmental Challenges*

Several factors and obstacles affect livelihood capabilities and ability to participate or engage in income-generating activities. In the survey for this study, respondents were presented with fifteen business challenges and asked to rank it in order of 1-5 (one being minor and five being dominant). Five factors recorded the highest values as being significant obstacles to artisanal and non-farm businesses. These include, inadequate and lack of electricity (76.1%), poor access to credit (80%), lack of access to information (70%), corruption in the public services (74.5%) and cultural barriers, including gender issues (67%) as shown Table 4. GEM (2015) found that the formal financial sector supplies only 7% of funding in Nigeria, with over 80% of funding currently coming from either the entrepreneur’s personal or family savings. This situation is unsatisfactory due to the scarcity of personal savings and sources of income in the rural areas. Another factor is cultural context specific to a group or society with the capacity to make individuals behave in specific ways (Miao, Qian and Ma, 2017; Bagwell, 2018; Werthes, René Mauer and Brettel, 2018).

[INSERT TABLE 4 HERE]

In the views of Kuzilwa, (2005), as well as Shastri and Sinha (2010), all conditions for exploiting entrepreneurial opportunities such as education, experience and energy may exist, but the social, cultural and environmental constraints such as gender or societal discrimination and religious believes especially in developing economies, may hinder the entrepreneur. ‘Social identity theory’ explains intergroup relations – i.e. how people come to view themselves as members of one group/category (the in-group) in comparison with another (the out-group), and the consequences of this categorisation, such as ethnocentrism (Turner *et al.*, 1987). In the study area, most of the social and cultural barriers revolved around gender, age, household size, education (demographic factors), rights, equality and inclusion of women in economic activities. This led to the development of the first research hypothesis:

*H1. Demographic characteristics affect the entrepreneurial choices made by business owners.*

In addition to the above social and cultural factors, access to credit and access to information are other significant constraints since most of the business owners are uneducated (see, for

example, World Bank Enterprise Surveys, 2014). These obstacles add to the usual challenges that businesses face such as lack of infrastructure, insecurity, bribery, time lost in dealing with bureaucracy, power shortages and the lack of market access (Igwe *et al.*, 2018d). This led to the second research hypothesis:

*H2. Access to credit, information and infrastructural facilities affect the entrepreneurial choices made by business owners.*

### *Multinomial Logit Model: Concept and Application*

The survey captured annual income from employment activities which was used to model the regression. Multinomial logistic regression model was used to identify the factors affecting the occupational choices made by the rural business owners. The multinomial logit models have some advantages in examining livelihood choices. However, there are two main limitations of letting categorical (discrete) variables represent livelihood options according to Rahman and Akter, (2014). First, the zero cut-off is though problematic since a farming household will diversify income sources by choosing agricultural and non-agricultural options, simultaneously. Second, the categorical dependent variable fails to consider the variation within the 0–1 range (choose an option or not). This study, however, modeled the decision of rural business owners using the categorical options of 1, 2 and 3 for the agricultural, artisanal and wage employment choices owing to the available data. While in the second model, we adopt income as the dependent variable and multivariate Tobit model for estimation. A Tobit model has been described by several scholars (Rahman and Akter, 2014) as the most suitable because it uses all observations, both those at the limit, usually zero (for example, non-participants), and those above the threshold (for example, participants), to estimate a regression line as opposed to other techniques that use observations which are only above the limit value.

### *Variables used for Empirical Estimation of the Models*

The empirical application focuses on the identification of socio-economic factors that affect the decision on livelihood and employment choices. The key elements and implicit assumptions underlying the models are based on Abdulai and CroleRees (2001) and Rahman and Akter (2014), where all respondents are engaged in agriculture, have access to land and labour and have diversified into other activities to spread income risk and security. Therefore, three livelihood income categories considered in this study are: 'agricultural self-employment', 'Artisanal self-employment' and 'Wage employment' (as categorical variables). This decision is based on the outcome of the survey that indicated that all the business owners in the study area combine more than one form of income activity. Therefore, the dependent variables are based on whether households earned income from one or combinations of these options. Although the survey captured information about the business owner's family, we consider only the business owners' main occupations and income to categorise our dependent variables. The model is specified below:

$$Y_{ji}^* = \sigma_j + \beta_{j1}Z_{1ij} + \beta_{j2}Z_{2ij} + \dots + \beta_{jk}Z_{kij} + \epsilon_{ji} \dots \dots \dots (1)$$

$\sigma_j$  remains constant across alternatives

$\beta_{j,k}$  is a regression coefficient associated with the  $j$ th explanatory variable &  $k$ th outcome for  $j = 1, 2, 3, \dots, j = 1$ .

$\epsilon_{ji}$  is a random error term reflecting intrinsically random choice.

Where,

$Y_{ij}$  = Occupational choices by the farming business owners



Let  $Z_{ij}$  ( $j=1, 2, 3$ ) denote the probability associated with the three choices, with  $j = 1$  if the option is Agriculture only,  $j = 2$  if the option is agriculture combined with Artisanal,  $j = 3$  if the option is agriculture combined with Wage Employment.

The symbol  $Z$  denotes the set of independent variables:

$Z_1$  = Age of business owners (years)

$Z_2$  = Sex of business owners (Male=1, Female=0)

$Z_3$  = Marital Status (Married=1, Others=0)

$Z_4$  = Years of Schooling (years)

$Z_5$  = Technical Education (Yes=1, No=0)

$Z_6$  = Family Size (Number)

$Z_7$  = Household Income (Naira)

$Z_8$  = Membership of Social Group (Yes=1, No=0) (access to information was assessed through this variable)

$Z_9$  = Access to Road (Yes=1, No=0)

$Z_{10}$  = Access to Credit/capital (Yes=1, No=0)

$Z_{11}$  = Access to Electricity (Yes=1, No=0)

### *Multivariate Tobit Regression Model: Concept and Application*

The binary outcome measurement ignores the joint and/or simultaneous nature of the decision-making process and the self-selection of households into and out of occupational choices (Winters *et al.*, 2002; Yunez-Naude and Taylor, 2001). Failure to recognise interdependencies and endogeneity of occupational choice in analysing resource allocation problems results in biased and inefficient estimates. The advantage of the Tobit model is that it captures the decision to participate as well as the resulting outcome, whereas a Probit model will provide information on the decision to participate only (Rahman and Artker, 2014). The earlier literature on livelihood analysis is skewed towards using single-equation probit and logit models to model discrete choices (for example, Abdulai and CroleRees, 2001; Jansen *et al.*, 2006). Such models, however, are inappropriate to handle simultaneous and joint decisions. Multivariate models such as multinomial logit or multinomial Tobit models are applied to gauge decisions involving interdependent choices. Dorfman (1996) acknowledging the limitation of bivariate models to handle decisions involving interdependent decisions used multinomial Probit to model multiple, interlinked decisions. Suppose that  $U_j$  -  $U_p$ , represent a household's perceived utility for occupational choices  $j$  -  $k$  respectively and suppose also that  $X_j$ -  $X_p$  are vectors of explanatory variables that influence the perceived desirability of activities  $j$  -  $p$ . Following Green (2008), the linear random utility model could be specified as:

$$P(Y=1|X) = P(U_{ij} > U_{ip})$$

$$= P(\beta_j'X_j + \varepsilon_j - \beta_k'X_i - \varepsilon_p > 0 | X)$$

$$= P(\beta_j'X_i - \beta_p'X_i + \varepsilon_j - \varepsilon_p > 0 | X)$$

$$= P(\beta^*X_i + \varepsilon^* > 0 | X = F(\beta^*X_i))$$

Where  $P$  is a probability function,  $U_{ij}$ ,  $U_{ip}$  and  $X_{ij}$  are as defined above,  $\varepsilon^* = \varepsilon_j - \varepsilon_p$  is a random disturbance term,  $\beta^* = \beta_j - \beta_p$  is a vector of unknown parameters which can be interpreted as the net influence of the vector of independent variables influencing choice, and  $F(\beta^*X_i)$  is the cumulative distribution function of  $\varepsilon^*$  evaluated at  $\beta^*X_i$ . The exact distribution of  $F$  depends on the distribution of the random disturbance term  $\varepsilon^*$

$Z$  denotes a set of independent variables:



$N_1$  = Age of business owners (years)

$N_2$  = Sex of business owners (Male=1, Female=0)

$N_3$  = Marital Status (Married=1, Others=0)

$N_4$  = Years of Schooling (years)

$N_5$  = Technical Education (Yes=1, No=0)

$N_6$  = Family Size (Number)

$N_7$  = Membership of Social Group (Yes=1, No=0) (access to information was assessed through this variable)

$N_8$  = Access to Road (Yes=1, No=0)

$N_9$  = Access to Credit/capital (Yes=1, No=0)

$N_{10}$  = Access to Electricity (Yes=1, No=0)

### [INSERT TABLE 5 HERE]

#### *Determinants of Occupational Choice by Business owners – A Multinomial Logit Analysis*

The determinants of the occupational choices made by business owners in the study area was modeled using the multinomial logit regression model. The scale of significance used was 1 - 10% level. The result of the analysis showed a model diagnostics of log likelihood of -259.64 and LR  $\chi^2$  of 366.04 measures which ratifies the significance and suitability of the model and the variables selected (Table 6). The result of the multinomial logit regression shows that younger respondents are more likely to take up artisanal enterprise and wage employment relative to agricultural enterprise. This holds a lot of implication for possible decline in food production in the area given the current practice and aging population of food producers. The result shows that female respondents are more likely to take up artisanal and wage employment relative to males (Leitão, 2016). The men are more likely to engage in agricultural enterprises relative to women who tend to engage in other occupational choices. More married business owners were found to engage in artisanal enterprise, and less in wage employment relative to agricultural enterprise ( $p < 0.01$ ).

The findings showed that respondents with higher years of schooling engage more in artisanal and wage employment relative to agricultural enterprises. Respondents who had technical education engaged more in artisanal enterprise (+ve,  $p < 0.01$ ) while lesser proportion were observed to take up wage employment (negative and significant at 5%,  $p < 0.05$ ). Business owners who had larger family size were less engaged in artisanal enterprise relative to wage employment. Respondents who are members of social group ( $p < 0.01$ ), had access to credit ( $p < 0.001$ ), access to road and access to electricity had higher likelihood of engagement in artisanal enterprise relative to agricultural enterprise (Table 6). Business owners who were members of social groups and who had access to electricity were also engaged in wage employment relative to agricultural enterprise.

### [INSERT TABLE 6 HERE]

The signs of the coefficient from the regression analysis show the direction of the socio-economic and infrastructural variables on the policies in favour of artisanal entrepreneurship and agricultural entrepreneurship. The result suggests that artisanal and non-farm activities can be encouraged when infrastructural facilities are provided, accessible and affordable.

#### *Determinants of Occupational Choices & Intensity of Participation*

Multivariate Tobit model was used to assess the jointness in the decisions about the occupational choices of the respondents. It accounts for the simultaneity and/or

interdependence of the decisions made by the respondents. The income from the agricultural, artisanal and wage occupational choices was used as the dependent variable. The result of the analysis showed a model diagnostics of log likelihood of -12,967.96 and Wald  $\chi^2$  of 1463.71 measures which ratify the significance and suitability of the model and the variables selected (Table 7). The result of the multivariate Tobit regression analysis on the sampled data showed that older respondents are more in agricultural enterprise relative to artisanal and wage enterprises which have younger respondents. Furthermore, male respondents are more engaged in agricultural and artisanal enterprises relative to wage employment that has more females (see, for example, Leitão, 2016).

[INSERT TABLE 7 HERE]

The study showed that married respondents are more into agricultural and artisanal enterprises with a higher level of significance noted for agrarian enterprises. Higher years of schooling and exposure to technical education had a positive effect on the decision to take up agricultural and artisanal enterprises. Access to credit positively influenced the decision for agrarian enterprises while membership of social group positively influenced the decision for artisanal entrepreneurship and wage employment. Access to electricity had a positive effect on the agricultural and artisanal enterprises and wage employment at 1% level of significance.

*Focus Group*

The survey was followed up with a focus group of seven experienced artisan business owners (4 men and 3 women) to validate some of the responses, and clarify some important trends captured from the questionnaire survey. This method was employed as means of triangulation and questionnaire validation (Usman, 2010). It also offered opportunity to explore participants views on the development of artisanal enterprises in the study area. There is a wealth of resources on the relative merits of the focus group method, and its contribution to research practice (Krueger and Casey, 2000; Morgan, 1993). They are best used where “why?” “what?” and “how?” questions are required (Holtzhausen, 2001). Participants of the focus group provided some clarity and contributions regarding the notion of OE vis-à-vis NE. Members of the focus group emphasised that most of the artisanal and non-farm businesses results from necessity rather than opportunity. Also, the general views of the participants were that past policies in Nigeria have not been very successful in development in either agricultural and/or artisanal enterprises.

Participants suggested that policies and programmes should be specifically targeted at young people, preferably women who have higher levels of formal education as many of them were pushed into artisanal activities rather than an as an opportunity. In addition, many participants believed that technical or apprenticeship training should be promoted in the study area with possible implications for the national economy. Majority of the views point to the changing landscape of the rural economy, where farming is no longer a significant source of income and livelihood, rather through a combination of non-farm activities, including local handicrafts and artisanal activities. Only few of the participants, were of the view that the focus of development should be on farming and not on non-farm activities. They opined that attempt to promote artisanal entrepreneurship would have negative implications for agricultural production.

**Discussion**

Artisanal activities constitute a high proportion of rural activity in the study context – with

more than half (54.2%) of respondents being classified as artisans. In addition to this observation, the results from the study also revealed that some artisanal ventures were more gender-skewed (e.g. carpentry, general repairs such as maintenance services, electrical repairs, plumbing, auto mechanics, etc.). Majority of these activities are family businesses, having family members working either part-time, full-time or voluntary. Also, the majority of rural farm, non-farm and artisanal activities are informal. In this study, as much as 82% of businesses were found to informal. Whereas men dominate in farming activities with 15.1% (women 3.8%), women dominate in non-farm and artisanal activities with 51% (men, 30%). One of the explanations for the differences in occupational choices between men and women is culture and tradition that tends to favour men over ownership of assets such as land in rural communities.

Another significant feature of artisan entrepreneurs in the study area is that majority (82%) are young people of the age 20-45 years. This has implications due to the high rate of unemployment in Nigeria where young people are pushed or see opportunities in the form of self-employment. The mean of years of education was 6.9 years, an indication of a low level of education among the respondents. The results revealed that majority of the respondents were self-training about 38.2%, an indication of lack of access to apprenticeship or technical training schemes. Also, there is a high level of large family size (with an average of 10.3 people per family). From the focus group discussion, one of the reasons for the high family size could be attributed to need for agricultural family labour.

Nigeria leads the world in the proportion of the population who believe they have the skills to run a business; almost 90% of Nigerian adults think they could become entrepreneurs (GEM, 2014). However, these entrepreneurs are constrained by the institution, described as political, social and legal ground rules within which businesses operate. This study revealed several socio-economic, political and environmental factors that prevent artisanal entrepreneurs who want to start or grow their businesses. Five factors revealed as major obstacles to rural artisanal, and non-farm businesses are inadequate and lack of electricity (76.1%), poor access to finance and credit (80%), lack of access to information (70%), corruption in the public services (74.5%) and cultural barriers, including gender issues (67%). Several studies have shown similar findings (World Bank Enterprise Survey, 2014). In the Enterprise Survey, business owners were presented with a list of 10 business environment obstacles and asked to choose the biggest obstacle to their business. Access to finance, access to electricity and the level of corruption was the most ranked obstacles for firms with 33.1%, 27.2% and 12.7% respectively (World Bank Enterprise Survey, 2014). Some studies point to corruption as the significant socio-economic and institutional problem in Nigeria, which appears embedded in the culture (Igwe *et al.*, 2017 and Igwe *et al.*, 2018a and 2018d).

A multinomial logistic regression model was used to identify the factors affecting the occupational choices made by business owners. This method was chosen since the results of the survey indicated that all the business owners in the study combined more than one form of income activity. As a result, three livelihood categories were considered as the dependent variables – 'agricultural self-employment', 'Artisanal self-employment' and 'Wage employment'. While, the vector of independent variables influencing occupational choice (socio-economic and cultural factors) was the age of business owners, Gender, Marital Status, years of schooling (years), Technical education, Family size, membership of a social group, access to road, access to credit and access to electricity. Multivariate models such as multinomial Logit or multinomial Tobit models are applied to gauge decisions involving interdependent choices.

The result of the multinomial logit regression shows that younger respondents are more likely to take up artisanal enterprise and wage employment relative to agricultural enterprise. The result also indicated that women were more likely to take up artisanal and

wage employment relative to males, whereas men are more likely to engage in agricultural enterprises. The findings showed that respondents with higher years of schooling participate more in artisanal and wage employment relative to agrarian enterprises. Business owners who had technical education engaged more in an artisanal enterprise (+ve,  $p < 0.01$ ), while minor proportion was observed to take up wage employment (negative and significant at 5%,  $p < 0.05$ ). Also, business owners who had larger family size were less engaged in artisanal enterprise relative to wage employment. In a similar trend, respondents who are members of social groups ( $p < 0.01$ ), had access to credit ( $p < 0.001$ ), while, access to road and access to electricity had a higher likelihood of engagement in artisanal enterprise relative to agricultural enterprise. The implications of these findings suggest that artisanal and non-farm activities can be encouraged when these factors are available and accessible.

Despite the contributions of this study, it has its limitations, which provide avenues for future research. For example, there is a need to explore more variables than those outlined in this study to tease out other possible determinants accounting for engagement in an artisanal enterprise such as remittances, location (in terms of rural and urban/city centres) through experimental research. Furthermore, future research could adopt a purely qualitative approach to ensure a deeper understanding of the sociocultural context in which artisanal entrepreneurs operate in the developing world context. This will present an excellent opportunity for understanding the underlying perceptions, behaviours, motivations and attitudes towards artisans (see, for example, Krueger and Casey 2000). Another opportunity will be to test whether firms in urban, semi-rural, and rural areas perceive each of the obstacles or variables to their success differently (see, for example Lyee and Cowling, 2015). In their study, Lyee and Cowling (2015) posit that firms in rural and urban areas differ in their characteristics, and these may have more important influences on firm growth than location.

**Conclusion and Implications**

This study has sought to highlight the characteristics of rural artisan entrepreneurs, the determinants of their decision to engage in an artisanal activity, and the challenges that impact upon their growth and contribution to the economy – taken from a developing world context. The study found that artisanal entrepreneurial activities often took the form of informal, low skilled, and family-oriented dimensions. Most of the activities from the research were also found to have a gender bias where women dominated the lower employee sector(s). The study used a multi-nominal regression to explore the determinants of diversified artisanal livelihoods, modelling differences between farm owners that have not diversified, with those involved in small-scale activity or wage employment. Following this, the study assessed variables relating to the intensity of participation.

The results of the multinomial logit regression showed that factors such as access to education, credit, vocational training, infrastructure (i.e. roads and electricity) had a higher likelihood of engagement in artisanal activities. Given that the findings suggest that most of the artisanal and non-farm businesses were a necessity (or NE) driven, public policy is required to support these activities, especially artisanal businesses (see, for example, Nwankwo *et al.*, 2010). An international standard demonstrating the successful use of local craft heritage to promote ‘sense of place’ is the ‘Hand-Made in America’ initiative, which has a 20-year history of using craft to promote local economic vitality (Brown, 2015).

While acknowledging the comments of Jones and González-Cruz (2017, p. 847) about “turning Kurt Lewin on his head: nothing is so theoretical as a good practice,” we add that good practice can emerge from theoretical insights which have policy implications. It is against this backdrop that this study suggests robust and pragmatic policies aimed at promoting youth employment and reducing poverty in Nigeria to concentrate on education,



apprenticeships, and access to credit, with a view to catalysing participation in artisanal and non-farm activities (albeit not to the detriment of farming activities). Two main contributions emerge from this study. First, the use of econometric methods enabled development of valid data sets (and various descriptive statistical and logit regression) to analyse determinants of the decision to engage in artisanal work, and the intensity of participation. Second, the ambiguity in categorising artisanal activities is unravelled. The study characterises the local artisanal sector and examines the intensity of participation. Without these, targeted support would remain elusive for practical and policy interventions.

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Table 1. Types of Farming, Non-farm and Artisanal Business Activities.

Types of Activities	Frequency	Percentage
Farming only (crops and livestock)	58	18.95
(Formal activities, Informal activities)	(16, 42)	(5.23, 13.72)
(Ownership by Gender: Male, Female)	(46, 12)	(15.03, 3.92)
Farming with non-farm business activities	248	81.05
(Non-farm Activities: Formal, Informal)	(39, 209)	(12.75, 68.3)
(Non-farm Ownership by Gender: Male, Female)	(92, 157)	(30.06, 51.3)
Manufacturing of Local Crafts and equipment*	(40)	(13.07)
Textile and weaving*	(22)	(7.18)
Merchandise or trading*	(45)	(14.71)
Technical services (mechanical, electricians, plumbers, etc.) *	(18)	(5.88)
Off-farm and migratory labour (non-skilled)	(52)	(16.99)
Food and drinks (processing & retail) *	(18)	(5.88)
Fish Ponds*	(6)	(1.96)
Butchers and meat processing*	(9)	(2.94)
Quarry and Mining*	(8)	(2.61)
Transportation (Okada, Keke and car taxi)	(7)	(2.29)
Wage employment	(10)	(3.27)
Others	(13)	(4.25)
Total (excluding figures in brackets)	306	100
* Represent Artisanal activities		

Source: Computed from Survey data

Table 1. Socio-demographic Characteristics of Respondents.

Variables	Frequency	Percentage
Age Group of Business owners		
20 – 35 years	38	12.4
36 – 45 years	215	70.3
46 – 65 years	53	17.3
Mean (Standard Dev)	52.6	(8.97)
Gender of Business Owners		
Male	138	45.1
Female	168	54.9
Education Level/Years of Schooling		
0 – 5 years	60	19.6
6 – 10 years	150	49.0
11 – 14 years	58	19.0
15 – 18 years	38	12.4
Mean (Standard Dev.)	6.89	(4.497)
Number of Employees		
Number of Businesses with employees	167	54.57
Mean workers	1.6	(.614)
Marital Status of business owners		
Married	282	92.2
Family Size of business owners		
1 – 5	20	6.5
6 – 10	228	74.5
11 – 15	49	16.0
16 – 20	9	2.9
Mean (Standard Dev.)	Approx. 10.3	(3.865)

Source: Computed from survey data.

Table 3. Types of Training received by business owners.

Training	Frequency	Percentage
Trading apprenticeship	20	6.5
Tailoring	14	4.6
Catering	2	0.7
Hair dressing and weaving	4	1.3
Manufacturing Work	14	4.6
Technical Work	94	30.7
Food Processing	1	0.3
Electrical/Mechanical Work	14	4.6
Building Construction Work	26	8.5
Other (self-trained)	117	38.23
Total	306	100.0

Source: Computed from Survey data.

Table 4. Socio-economic, Political and Environmental barriers.

Factors	Percentage distribution by degree of obstacle				
	Minor	Low	Moderate	Big	Major
Inadequate or lack of access to electricity supply	2.8	6.0	6.6	8.5	<b>76.1</b>
Inadequate or lack of supply of clean water	0.0	0.0	22.4	28.1	49.5
Lack of roads or poor quality of road network	4.6	10.0	18.2	8.6	58.6
Lack of access to finance and credit	4.1	2.6	6.3	7.0	<b>80.0</b>
Inadequate or high cost of transportation	3.9	3.0	18.5	20.0	54.6
Business license and registration costs	12.3	10.2	25.6	13.1	38.8
Low demand for goods of local produced goods	5.0	11.2	15.7	16.4	51.7
Lack of information	2.3	6.8	8.4	12.3	<b>70.2</b>
Lack of access to postal services	16.0	14.8	20.0	14.5	34.7
Lack of access to education and training	0.0	2.0	17.2	20.4	60.4
Corruption in the public services and politics	1.6	4.2	7.0	13.7	<b>74.5</b>
Imports of foreign cheap goods	5.2	12.0	13.8	17.0	52.0
Crime and social unrest	0.0	0.0	28.5	15.7	55.8
Urbanization and rural-urban labour migration	10.0	8.6	21.3	9.9	50.2
Tradition and cultural barriers (including gender issues)	2.4	3.1	16.0	11.5	<b>67.0</b>

Source: Computed from Survey data

Table 5. Definition, Measurement and Summary Statistics of Variables.

Variables	Definition	Measurement	Mean	Standard Dev
<b>Dependent Variable</b>				
Agricultural Enterprise	Income of respondents who chose Agricultural enterprise only	Naira (₦)	116,000.00	80,107.74
Artisanal Enterprise	Income of respondents who chose Artisanal enterprise	Naira (₦)	94,400.00	79,060.18
Wage Employment	Income of respondents who engage in Wage employment	Naira (₦)	95,300.00	34,305.02
<b>Independent Variables</b>				
Gender	Male=1, Female=0	Male=1, Female=0	0.917	0.277
Age	Years	Years	52.55	8.97
Years in School	Years spent in formal schooling	Years	6.89	4.497
Farm Size	Area of land cultivated (Ha)	Hectares	2.446	0.757
Family size	Number of persons living in the household	Number (count)	10.35	3.865
Access to Credit	If owner have accessed formal credit	Yes=1, No=0	0.417	0.494
Member of Social Group	Membership of cooperative or social club	Yes=1, No=0	0.900	0.300
Access to Road	If community have access to good roads	Yes=1, No=0	0.475	0.499
Access to Electricity	If community have access to electricity	Yes=1, No=0	0.383	0.487



Table 6. Determinants of Occupational Choice by Business owners – A Multinomial Logit

Variable	Artisanal Enterprise			Wage Employment			Marginal Effects
	Co-efficient	Std Error	z- stat	Co-efficient	Std Error	z- stat	
Constant	6.2079***	1.4311	4.34	12.0121***	2.3897	5.03	
Age of owners	-0.1169***	0.0276	-4.23	-0.2738***	0.0534	-5.13	0.0255***
Sex of owners	-1.9173**	0.7629	-2.51	-2.9583***	0.9006	-3.28	0.4744***
Marital Status	0.3574	0.5755	0.62	-2.7252***	0.8267	-3.30	0.1418***
Year of Schooling	0.0758	0.0535	1.42	0.3518***	0.0907	3.88	-0.0199**
Technical Education	1.8473***	0.3076	6.01	-2.0806***	0.6099	-3.41	-0.2694***
Family size	-0.1344**	0.0603	-2.23	0.1478	0.0969	1.52	0.0200***
Farm size	-0.7401**	0.3252	-2.28	-0.0586	0.4663	-0.14	0.1278**
Access to credit	1.0272***	0.2986	3.44	-0.0334	0.5376	-0.06	-0.1823***
Membership of Social Group	1.5080***	0.4527	3.33	1.5684**	0.7264	2.16	-0.2058***
Access to Road	0.0274	0.2689	0.10	-0.3990	0.4300	-0.93	0.0032
Access to Electricity	0.3700	0.3073	1.20	1.6831***	0.4698	3.58	-0.1059*
Log Likelihood	-259.642						
LR $\chi^2$	366.04						
Pseudo R <sup>2</sup>	0.414						

Source: Computed from Survey data

Notes: 1. \*\*\* = significant at 1 percent level ( $p < 0.01$ ); \*\* = significant at 5 per cent level ( $p < 0.05$ ); and \* = significant at 10 per cent level ( $p < 0.10$ ). The Base Category was the Agricultural Enterprise.

Table 7. Determinants of Occupational Choices and Intensity of Participation: A Multivariate Tobit Analysis

Variable	Agricultural Enterprise			Artisanal Enterprise			Wage Employment		
	Co-efficient	Std Error	z- stat	Coefficient	Std Error	z- stat	Coefficient	Std Error	z- stat
Constant	-15.7609***	2.1867	-7.21	6.4038***	1.9327	3.31	-6.9357*	3.7417	-1.85
Age of business owners	0.1304***	0.0464	2.81	-0.1503***	0.041	-3.66	-0.2935***	0.0862	-3.40
Gender of business owners	2.3712**	1.0446	2.27	0.7991	0.9113	0.88	-0.7841	1.6327	-0.48
Marital Status of business owners	3.9377***	1.0702	3.68	0.2377	0.9329	0.25	-1.9595	1.8424	-1.06
Year of Schooling	0.6551***	0.0616	10.62	1.3383***	0.0546	24.51	1.7469***	0.1383	12.63
Technical Education	1.4436**	0.5695	2.53	1.5780***	0.4989	3.16	-0.1047**	0.9135	-0.11
Household size	0.5424***	0.1027	5.28	0.1884**	0.0902	2.09	0.3383	0.1603	2.11
Farm size	1.7683***	0.4530	3.90	-1.6368***	0.4035	-4.06	0.6682	0.7373	0.91
Access to credit	0.1708	0.5565	0.31	-0.0850	0.4911	-0.17	-0.3855	0.9608	-0.40
Membership of Social Group	-1.0291	0.9105	-1.13	1.6176**	0.8084	2.00	0.8152	1.4863	0.55
Access to Road	-0.4033	0.5113	-0.79	-0.3717	0.4506	-0.82	0.5221	0.8472	0.62
Access to Electricity	1.6868***	0.5561	3.03	1.6246***	0.4888	3.32	2.2956***	0.8649	2.65

Note: Log likelihood -12,967.96, Wald chi2 = 1463.71, Prob chi2 = 0.000

Source: Computed from Survey data.

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Responses to Referees' Comments to Authors:

Reviewer #1 (Recommendation: Minor Revision)	Authors Responses
<b>1. Originality:</b> This paper is very original and contains new insights and information relating to artisanal activity in a developing country which we know very little about. It more than justifies publication	Thank you. This is very much appreciated.
<b>2. Relationship to Literature:</b> The paper covers a wide range of literature covering key elements relevant to the study including socio-economic development, regions and clusters, family businesses, and barriers to growth. I would point out that the necessity - opportunity classification is not new and existed in labour economics decades before GEM (see for example, Mark Taylor, 1996, Earnings, Independence, or Unemployment: Why become self-employed?). There are also some interesting papers on barriers for entrepreneurship in deprived areas and rural locations (see for example, Neil Lee and Marc Cowling, 2015, Environment and Planning C).	Thanks for the recommendations.  We have explored the suggested articles – i.e. Taylor, 1996 and Lyee and Cowling, 2015, and have added both citations (p.5 and p.15). We have also added new articles. Thanks for these suggestions.
<b>3. Methodology:</b> The research combines a quantitative survey and qualitative work. This is a strength of the paper as it has depth, breadth, and quantitative rigor. The author(s) have designed their research well and the analysis is very well constructed and executed. I would really like to see some (simple) additional analysis to support their conclusions relating to 3 additional logit (probit) models using three binary barriers (lack of access to credit, lack of access to information, and cultural issues) as a function of personal characteristics. This would strengthen their ability to draw policy implications and suggest where support might best be targeted.	This query has now been addressed and explained. Lack of access to credit was captured by the variable "Credit Access" denoted as Yes = 1 and No = 0.  Access to information was assessed using the variable "Membership of Social Groups" as shown on p.8 & 9. Cultural issues were not properly graded as a result of the Open-ended questions presented to them.
<b>4. Results:</b> The results are well presented and the discussion clearly links to the results tables. Analysis is good and where appropriate alternative model specifications are provided. The analysis clearly links to the issues raised in the introduction and literature review. Conclusions are representative of the key findings.	Thank You. This is very much appreciated.
<b>5. Implications for research, practice and/or society:</b> The paper has very important implications for research - giving us strong insights into a large developing country, and society - it gives us a strong evidence base and provides clear policy guidelines should the government wish to strengthen the socio-economic position of individuals and the regions they live in. This work is easily replicable in other developing countries which I feel would add huge value.	Thank You. No further action required.
<b>6. Quality of Communication:</b> The paper very clearly expresses its case and is generally well written and structured. It is very readable and interesting.	Thank You. No further action required.



Reviewer #2 (Recommendation: Minor Revision)	Authors Responses
<b>Comments:</b> I congratulate the authors of the study for examining such issue. This paper addresses an interesting topic and is well-written, but it also includes some shortcomings, which suggests further improvement.	Thank you, Reviewer #2. You seem happy with most aspects of the manuscript except the following which have all now been addressed.
1. On page 1 (Practical Implication), "it is the former that makes the most contributions to livelihood.." This sentence is not clear.	This sentence has now been revised in the light of your comment. The sentence now reads, "...it is the former (i.e. artisans as trade practitioners)..." Please see p. 2, lines 2-3.
2. "the decision of rural business owners using the dichotomous options of 1, 2 and 3 for the agricultural, artisanal and wage employment choices owing to the available data." (P. 7, line 53).Options of 1, 2 and 3 are not dichotomous because they are three. Dichotomous variables are nominal variables which have only two categories or levels. We instead call it categorical variables.	The word "dichotomous" has now been expunged and replaced with "categorical". Please see p.7 where it now appears. Thank you.
3. Who were the people who took part in the focus group? (Seven participants??) Please describe their characteristics and the process in which you use them to validate your questionnaires and results etc.? 4. Where are the questionnaires? Please add them as Appendices 5. Where are the hypotheses based on the research background? Relying only on data results might be very risky in generating the results!	<p>The participants have now been included in the manuscript. It now clearly states, "The survey was followed up with a focus group of seven experienced artisan business owners (4 men and 3 women) to validate some of the responses..." Please see the last section on p. 12.</p> <p>Regarding placing the questionnaires in the appendix, perhaps it may be better to sent you and the Editor (if s/he requests), rather than appending to the manuscript.</p> <p>In terms of hypothesis, we followed Tregear, (2005) by suggesting that our respondents were not 'lifestyle seekers' but operated with 'commercial ambitions' and also under 'adverse market conditions'. Please see the last paragraph on p. 4.</p> <p>The study hypotheses and research background has been developed on p. 8 &amp; 9 as H1 &amp; H2.</p>
6. Please check typo errors, e.g., p. 10 line 22: Participants suggest that policies and programmes should that targets young people 7. Authors raised an exciting issue of necessity vs. opportunity entrepreneurs during the development of the literature review (p.6 & 4). However, this is missing in the results and discussion parts.	<p>Regarding point #6, the error has been amended (see last paragraph on p. 12) to now read, "Participants suggested that policies and programmes should be specifically targeted at young people..."</p> <p>Necessity vs opportunity was captured during the focus group as shown on p.10</p> <p>Point #7 is directly linked to the issue of not being lifestyle seekers, but commercially driven under adverse market conditions. Please see our response to point #5 above.</p>
8. Please shift the limitation and future research (currently in the Conclusion part) to the Discussion part.	Thank you for the suggestion. These have now been moved to the advised section.

<b>Reviewer #3 (Recommendation: Major Revision)</b>	<b>Authors Responses</b>
<p><b>Comments:</b> Thank you for the opportunity to read your study.</p> <ul style="list-style-type: none"> <li>- I suggest that the author uses more recent references (for the last two years, for example), and that he references more articles IJEBr - International Journal of Entrepreneurial Behavior &amp; Research.</li> </ul>	<p>Thank you for the suggestions. We have now sources, read, articulated, and incorporated new and relevant papers into the manuscript, including relevant IJEBr articles.</p>
<ul style="list-style-type: none"> <li>- Not all references cited are in the bibliography, and not all bibliography is cited in the document.</li> </ul>	<p>We have sifted through this omission and rectified the situation accordingly. Thank you.</p>
<ul style="list-style-type: none"> <li>- He suggested that the author from the literature formulates some hypotheses of investigation. It is not well understood what one intends to test or contribute.</li> <li>- He suggested that once the research hypotheses were formulated, the author proposed a conceptual model and tested it based on the results he already has.</li> <li>- I suggest clarifying and justifying the scales used, it is not very well understood.</li> </ul>	<p>The hypotheses have been developed see, p.8 as H1 and H2. Cultural issues were not properly graded as a result of the Open-Ended questions presented to them. Modelling is not feasible due to the components of the data gathered.</p> <p>The scales used is 1 –10% level as shown on the notes under Table 6. But this has been inserted in page 10. The questionnaire was mostly open-ended questions and not based on scales.</p>
<ul style="list-style-type: none"> <li>- Gaps of the study unclear, better ground this question, as well as the contributions of it.</li> <li>- Where it refers (see Steel, 1979, for example) I would remove the expression "see".</li> <li>- Footnote, I would not use it. I would try to summarize and include in the text if possible.</li> <li>- You need to see the formatting of the bibliography better. Please see the formatting rules of the journal. I suggest that you review them one by one in order to standardize the standards.</li> </ul>	<p>The gaps have now been highlighted and likewise the contribution. Please see the implications section in the abstract, as well as the last section of the manuscript on p. 14.</p> <p>See Steel has been reframed.</p> <p>The footnote has been removed.</p> <p>Finally, the manuscript has been reformatted following IJEBr house rules as suggested. Thank you.</p>
<ul style="list-style-type: none"> <li>- Below table 7 appear "loose" data and it is not clear where they belong, I suggest you review this question. If necessary build another table.</li> <li>- Define acronyms the first time they appear.</li> </ul>	<p>The "loose data" below Table 7 have now been deleted. The authors have brainstormed over the value added of these supplementary data and have deemed it unnecessary to warrant a new Table.</p> <p>Table 1 has been amended to present original % scores.</p> <p>Furthermore, all acronyms have been explained in full at first mention. Thank you.</p>